

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO.
FOR
SK FOODS AND COLUSA COUNTY CANNING COMPANY
WILLIAMS TOMATO PROCESSING FACILITY
COLUSA COUNTY

The Discharger shall comply with this MRP, issued pursuant to Water Code Section 13267, which describes requirements for monitoring industrial process wastewater effluent, ponds, solids, land application areas, and groundwater. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. Field test instruments (such as those used to measure pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are field-calibrated prior to each monitoring event;
3. The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of the MRP.

GENERAL POND MONITORING

Each wastewater and tailwater pond shall be monitored as described below. If any pond is dry, the monitoring report shall so state.

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Dissolved Oxygen ¹	mg/L	Grab	Weekly	Monthly
Freeboard	0.1 feet	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Berm/levee condition	--	Observation	Monthly	Monthly

¹ Samples shall be collected at a depth of one foot from each pond in use, opposite the inlet. Samples shall be collected between 0700 and 0900 hours.

EFFLUENT MONITORING

Effluent samples shall be collected just prior to discharge to the land application areas. Sampling is not required during periods when no wastewater is discharged to the land application areas. Grab samples collected from a pipeline or sump pit will be considered representative. At a minimum, the Discharger shall monitor the wastewater as follows:

Constituent/Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
pH	pH units	Grab	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Weekly	Monthly
Fixed Dissolved Solids	mg/L	Grab	Weekly	Monthly
Suspended Solids	mg/L	Grab	Weekly	Monthly
Settleable Solids	ml/L	Grab	Weekly	Monthly
BOD ₅ ¹	mg/L	Grab	Weekly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Weekly	Monthly
Nitrate Nitrogen	mg/L	Grab	Weekly	Monthly
Ammonia Nitrogen	mg/L	Grab	Weekly	Monthly
Standard Minerals ²	mg/L	Grab	Monthly	Monthly

¹ 5-day, 20°C Biochemical Oxygen Demand

² Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, chloride, fluoride, iron, magnesium, manganese, phosphorus, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and total hardness as CaCO₃.

SUPPLEMENTAL IRRIGATION WATER MONITORING

Samples of supplemental irrigation water shall be collected at the wellhead. Sampling is not required during periods when no water is discharged to the land application areas. Grab samples collected from a pipeline will be considered representative. At a minimum, the Discharger shall monitor the supplemental irrigation supply water as follows:

Constituent/Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
pH	pH units	Grab	Monthly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Fixed Dissolved Solids	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly
Nitrate Nitrogen	mg/L	Grab	Monthly	Monthly
Standard Minerals ¹	mg/L	Grab	Monthly	Monthly

¹ Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, chloride, fluoride, iron, magnesium, manganese, phosphorus, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and total hardness as CaCO₃.

FLOW MONITORING

The Discharger shall monitor wastewater and supplemental irrigation water flows as follows:

Flow Source	Units	Type of Measurement	Monitoring Frequency	Reporting Frequency
Processing plant to wastewater pond	gpd ¹	Meter Observation	Daily ¹	Monthly
Daily discharge to irrigation areas: Wastewater Supplemental irrigation water	gpd	Meter Observation	Daily ²	Monthly
Daily subtotal to each irrigation field or check: Wastewater Supplemental irrigation water	gpd and inches	Meter Observation/ Calculation	Daily ²	Monthly

¹ Report as total daily flow from the flow source to the pond.

² Calculated based on total daily flows, flow rates, checks in use, and length of set time for each check.

SOLIDS MONITORING

Samples of solids removed from process wastewater shall be collected just prior to discharge to the solids application area. Sampling is not required during periods when no solids are discharged to the land application areas. Grab samples collected from a bin or transport vehicle will be considered representative. At a minimum, the Discharger shall monitor the solids as follows:

Constituent/Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Total weight discharged	tons ³	Calculated	Monthly	Monthly
Moisture	percent	Grab	Monthly	Monthly
Total organic carbon	mg/Kg ⁴	Grab	Monthly	Monthly
Total dissolved solids	mg/Kg ⁴	Grab	Monthly	Monthly
Total nitrogen	mg/Kg ⁴	Grab	Monthly	Monthly
Salts ¹	mg/Kg ⁴	Grab	Semi-Annually	Monthly
Metals ²	mg/Kg ⁴	Grab	Semi-Annually	Monthly

¹ Include at least sodium, chloride, sulfate, potassium, and calcium.

² Include at least magnesium, phosphorus, arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc).

³ May be estimated based on volume (cubic yards) and moisture content results.

⁴ Results shall be reported on both a wet weight and dry weight basis.

LAND APPLICATION AREA MONITORING

A. Daily Field Inspections

The Discharger shall inspect the land application areas at least once daily prior to and during irrigation events, and observations from those inspections shall be documented for inclusion in the monthly monitoring reports. The following items shall be documented for each check or field to be irrigated on that day:

1. Evidence of erosion;
2. Berm condition;
3. Condition of each standpipe and flow control valve (if applicable);
4. Proper use of valves;
5. Condition of head ditch;
6. Soil saturation;
7. Ponding;
8. Tailwater ditches and potential runoff to off-site areas;
9. Potential and actual discharge to surface water;
10. Accumulation of organic solids in ditches and at soil surface;
11. Soil clogging;
12. Odors that have the potential to be objectionable at or beyond the property boundary;
and
13. Insects.

The Discharger shall monitor the dissolved oxygen content of the wastewater at least once per day at the following locations:

1. The point of discharge from the force main into the head ditch;
2. The downstream end of the head ditch;
3. Any location where water is standing longer than six hours after delivery to the field has stopped.

Temperature; wind direction and relative strength; and other relevant field conditions shall also be observed and recorded. The notations shall also document any corrective actions taken based on observations made, including fresh water flushing of the force main and head ditches. A copy of entries made in the log during each month shall be submitted as part of the Monthly Monitoring Report.

B. Routine Monitoring

The Discharger shall perform the following routine monitoring and loading calculations during all months when land application occurs, and shall present the data in the Monthly and Annual Monitoring Reports.

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Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Precipitation	0.1 in.	Rain Gauge ¹	Daily	Monthly, Annually
Irrigation fields and checks receiving wastewater	--	Observation	Daily	Monthly, Annually
Hydraulic loading rate: Wastewater Fresh water ⁶ Total	gal/in.	Calculated ²	Daily	Monthly, Annually
BOD ₅ loading rate Peak daily Cycle average	lb/ac/day	Calculated ^{2,3}	Daily	Monthly, Annually
Cumulative nitrogen loading rate Wastewater Fresh water Other sources Total	lb/ac	Calculated ^{2,4}	Daily	Monthly, Annually
Cumulative total dissolved solids loading rate Wastewater Fresh water Total	lb/ac	Calculated ^{2,4}	Monthly	Monthly, Annually
Cumulative (to date) flow-weighted total dissolved solids concentration (combined wastewater and fresh water)	mg/L	Calculated ^{2,4}	Monthly	Monthly, Annually

¹ Data obtained from the nearest National Weather Service rain gauge is acceptable.

² Rate shall be calculated for each irrigation check.

³ BOD₅ shall be calculated using the daily applied volume of wastewater, actual application area, and the average of the three most recent BOD₅ results.

⁴ Total nitrogen and TDS loading rates shall be calculated as a flow-weighted average using the applied volume of wastewater, actual application area, and effluent monitoring results.

⁵ Loading rates for supplemental nitrogen shall be calculated using the actual load and the application area.

⁶ Identify supply well used for each check on each day.

C. Vadose Zone Monitoring

The Discharger shall install a vadose zone monitoring system within the Ranch 71 and Ranch 72 land application areas. The monitoring system shall consist of lysimeters designed to sample soil pore liquid within the vadose zone but no deeper than five feet below ground surface at each sampling location. For each site, a minimum of two lysimeters shall be installed in different irrigation checks at locations designed to represent a “worst case” scenario (e.g., in locations that tend to infiltrate faster or those potentially subject to ponding) of the check. The lysimeters shall be designed to provide sufficient sample volume to perform the analytical testing program specified below, and shall be completely purged after each sampling event.

As described in the Provisions section of this Order, the Discharger shall propose the type and locations, as well as methods to be used to purge and sample the lysimeters. These techniques shall be implemented upon approval by the Executive Officer. Lysimeter samples shall be analyzed using standard EPA methods. The vadose zone monitoring program shall consist of at least the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling and Reporting Frequency</u>
Date(s) of sampling	--	--	Second and fourth quarters
Volume removed ¹	mL	--	Second and fourth quarters
pH	--	Grab	Second and fourth quarters
Total nitrogen	mg/L	Grab	Second and fourth quarters
Total dissolved solids	mg/L	Grab	Second and fourth quarters
Fixed dissolved solids	mg/L	Grab	Second and fourth quarters
Chloride	mg/L	Grab	Second and fourth quarters
Iron	ug/L	Grab	Second and fourth quarters
Manganese	ug/L	Grab	Second and fourth quarters

¹ Pan lysimeters, if used, must be completely drained.

D. Annual Soil Sampling

The Discharger shall establish permanent representative soil monitoring locations as follows: three background locations outside of the land application areas (i.e., areas of the site that are not within irrigation checks) and eight locations within each of the land application areas. Sampling locations, including background locations, shall be distributed to be representative of each area and predominant soil types. Soil samples shall be collected from each sampling location at the following depth intervals: 0.5 to 1 feet, 2 to 3 feet and 4 to 5 feet below the ground surface. Each 12-inch sample shall be thoroughly mixed to create a composite sample representative of the depth interval, and shall be analyzed as follows:

Constituent/Parameter	Units	Sampling and Reporting Frequency ³
Soil Classification (USCS and USDA)	--	Annually
Total Solids	% total weight	Annually
Total Alkalinity ¹	mg/Kg as CaCO ₃	Annually
pH	pH Units	Annually
Cation Exchange Capacity ¹	meq/100 grams	Annually
Nitrate + Nitrite Nitrogen ^{1, 2}	mg/Kg, mg/L	Annually
Total Kjeldahl Nitrogen ^{1, 2}	mg/Kg, mg/L	Annually
Total Nitrogen ^{1, 2}	mg/Kg, mg/L	Annually
Total Dissolved Solids ^{1, 2}	mg/Kg, mg/L	Annually
Electrical Conductivity ⁴	umhos/cm	Annually
Calcium ²	mg/L	Annually
Magnesium ²	mg/L	Annually
Sodium ²	mg/L	Annually
Chloride ²	mg/L	Annually
Iron ²	mg/L	Annually
Manganese ²	mg/L	Annually

¹ To be reported on a dry weight basis; show calculations.

² Analysis shall be performed on the extract obtained from the Waste Extraction Test using distilled water as the extractant.

³ Samples shall be collected in the spring (second quarter). Sampling must occur at the same time each year.

⁴ Analysis shall be performed on a saturated paste extract.

GROUNDWATER MONITORING

The following groundwater monitoring requirements apply to existing monitoring wells LF-1, MW-4 through MW-12 inclusive, MW-16 through MW-18 inclusive, and MW-20 through MW-27 inclusive, and any other wells subsequently installed to monitor the discharge areas. Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Board for review and approval. Once installed, all new wells shall be added to the MRP and shall be sampled and analyzed according to the schedule below.

Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected and analyzed using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent/Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Depth to groundwater	0.01 feet	Measurement	Monthly ⁴	Quarterly
Groundwater elevation ¹	feet	Calculated	Monthly ⁴	Quarterly
Gradient magnitude	feet/feet	Calculated	Monthly ⁴	Quarterly
Gradient direction	degrees	Calculated	Monthly ⁴	Quarterly
pH	pH Units	Grab	Quarterly	Quarterly
Total dissolved solids	mg/L	Grab	Quarterly	Quarterly
Fixed dissolved solids	mg/L	Grab	Quarterly	Quarterly
Total Kjeldahl nitrogen	mg/L	Grab	Quarterly	Quarterly
Nitrate nitrogen	mg/L	Grab	Quarterly	Quarterly
Dissolved iron ²	mg/L	Grab	Quarterly	Quarterly
Dissolved manganese ²	mg/L	Grab	Quarterly	Quarterly
Total coliform organisms	MPN/100 mL	Grab	Quarterly	Quarterly
Standard Minerals ³	mg/L	Grab	Quarterly	Quarterly

¹ Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation.

² Samples shall be filtered with a 0.45-micron filter prior to sample preservation.

³ Standard Minerals shall include, at a minimum, the following elements/compounds: pH, boron, bromide, calcium, chloride, fluoride, magnesium, phosphorus, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and total hardness as CaCO₃.

⁴ After twelve consecutive months of monthly monitoring, the monitoring frequency shall be quarterly.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g. pond, effluent, soil, groundwater), sampling location, and the reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all groundwater monitoring reports shall be prepared under the direct supervision of a California-registered geologist or engineer and signed by the registered professional.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Board on the **1st day of the second month following sampling** (i.e., the January report is due by 1 March). Monthly Monitoring Reports

shall be submitted regardless of whether there is any process wastewater generated. At a minimum, the reports shall include:

1. Results of pond, effluent, supplemental irrigation supply, flow, solids, and all land application area monitoring. Data shall be presented in tabular format.
2. Daily precipitation data in tabular form accompanied by starting and ending dates of irrigation for each field or check.
3. Daily field inspection reports, including records of the date, time, and volume of fresh water used to flush the force main and head ditches; and dissolved oxygen monitoring results
4. A comparison of monitoring data to the discharge specifications and applicable limitations and an explanation of any violation of those requirements.
5. When requested by staff, copies of laboratory analytical report(s).
6. Calibration log(s) verifying calibration of any field monitoring instruments (e.g., DO, pH, and EC meters) used to obtain data.
7. Daily discharge volumes and acres irrigated shall be tabulated. The report shall include a discussion of the discharge volumes and irrigation practices used (water source, method of application, application period/duration, drying times, etc.) for each check or group of checks utilized during the month. Hydraulic loading rates (inches/acre/month) shall be calculated.
8. Maximum daily BOD₅ loading rates (lbs/acre/day) shall be calculated for each irrigation check using the total volume applied on the day of application, estimated application area, and a running average of the three most recent results of BOD₅ for the applicable source water, which also shall be reported along with supporting calculations. Cycle average BOD₅ loading rates shall be calculated using the total volume applied on the day of application, the number of days between applications, the total application period, application area, and a running average of the three most recent results of BOD₅ for the applicable source wastewater.
9. Total nitrogen and TDS loading rates (lbs/acre/month) shall be calculated for each irrigation check on monthly basis using the daily applied volume of wastewater, daily application area, and the most recent monitoring results, which shall also be reported along with supporting calculations.
10. Nitrogen loading rates for other sources (i.e., fertilizers) shall be calculated for each irrigation check on a monthly basis using the daily applied load and the estimated daily application area.
11. Cumulative nitrogen and TDS loading rates for each irrigation check for the calendar year to date shall be calculated as a running total of monthly loadings to date from all sources.

12. Flow-weighted average TDS concentrations shall be calculated based on year-to-date flow, effluent, and supplemental irrigation water monitoring results.

B. Quarterly Monitoring Reports

The Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Groundwater monitoring reports shall be submitted to the Board by the **1st day of the second month after the quarter** (i.e. the January-March quarterly report is due by May 1st each year). The Groundwater Monitoring Reports shall include the following:

1. Results of groundwater monitoring.
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged.
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any.
4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).
5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements.
6. Summary data tables of historical and current water table elevations and analytical results.
7. A scaled map showing relevant structures and features of the facility, the land application area and irrigation check boundaries, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum.
8. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Monitoring Report

An Annual Report shall be prepared as the fourth quarterly monitoring report. The Annual Report shall include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Regional Board by **1 February** each year. In addition to the

data normally presented, the Annual Report shall include the following:

1. Tabular and graphical summaries of historical monthly total loading rates for water (hydraulic loading in gallons and inches), BOD, total nitrogen, and total dissolved solids.
2. The flow-weighted average TDS concentration shall be calculated based on flow, effluent, and supplemental irrigation water monitoring results for the year.
3. A mass balance relative to constituents of concern and hydraulic loading along with supporting data and calculations. The report shall describe the types of crops planted and dates of planting and harvest for each crop.
4. For each violation of the Effluent Limitations of this Order, the report shall describe in detail the nature of the violation, date(s) of occurrence, cause(s), mitigation or control measures taken to prevent or stop the violation, and additional operational or facility modifications that will be made to ensure that the violation does not occur in the following year.
5. A narrative description of the annual soil monitoring program and a map of sampling locations.
6. Tabular and graphical summaries of historical soil analytical results for all monitored constituents and parameters.
7. Tabular and graphical summaries of historical vadose zone analytical results for all monitored constituents and parameters.
8. An evaluation of groundwater quality at the processing facility and the Ranch 71 and Ranch 72 land application areas. This determination shall be made using the methods described in Title 27, Section 20415(e)(10), and shall be based on all available data. For each monitoring parameter/constituent, the report shall compare the measured concentration in each compliance monitoring well with the background concentration. For the purpose of this evaluation the Discharger shall use data from monitoring wells LF-1, MW-4, MW-8, MW-9, MW-11, MW-12, MW-20, MW-21, MW-22, MW-23, MW-24, MW-25, MW-26, MW-27, and any other wells subsequently installed for the purpose of monitoring those areas.
9. An evaluation of soil and vadose zone monitoring data based on current and historical data including evidence of waste constituent migration, the effectiveness of land treatment, potential for groundwater degradation, and recommendations for operational modifications to reduce waste constituent migration.
10. A comprehensive evaluation of the effectiveness of the past year's wastewater application operation in terms of odor control, including consideration of application management practices (i.e.: waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), soil profile monitoring data and groundwater monitoring data.
11. A narrative description of solids disposal practices, including the name and contact information for each disposal facility and the quantity disposed.

12. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
13. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the certification statement by the Discharger or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

ALO:4/20/2006

(date)